AMALGAMATED SUGAR (PWS 5420001)
SOURCE WATER ASSESSMENT DRAFT REPORT

June 1, 2001

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for Amalgamated Sugar, Twin Falls, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Amalgamated Sugar, Twin Falls (PWS 5420001) drinking water system consists of one ground water source, Well #1. A review of the Idaho Drinking Water Information System (DWIMS) revealed water quality information for the Amalgamated Sugar drinking water system. No volatile organic compounds (VOCs), synthetic organic compounds (SOCs), or microbial contaminants were recorded for Well #1.

From November 1995 to August 2000, arsenic was detected in the Well #1 water in concentrations ranging from 0.006 milligrams per liter (mg/l) to 0.008 mg/l. These detections are well below the current Maximum Contaminant Level (MCL) for arsenic of 0.05 mg/l. The Safe Drinking Water Act requires the United States Environmental Protection Agency (EPA) to revise the current MCL for arsenic. In January 2001, EPA published a new standard for arsenic in drinking water that requires public water supplies to reduce arsenic to 0.01 mg/l by 2006. EPA is reviewing this standard so that communities that need to reduce arsenic in drinking water can proceed with confidence that the new standard is based on sound science and accurate cost estimates.

In November 1995, chromium was detected in the Well #1 water at a concentration of 0.004 mg/l, far below the MCL for chromium of 0.1 mg/l. In August 2000, antimony was detected in the Well #1 water at a concentration of 0.001 mg/l, below the MCL for antimony of 0.006 mg/l. From June 1995 to August 2000, nitrate was detected in the Well #1 water at concentrations ranging from 3.08 mg/l to 4.46 mg/l. The highest concentration of nitrate detected in the Well #1 water is just under 45% of the MCL for nitrate of 10 mg/l. The inorganic compounds (IOCs), arsenic, antimony, and chromium, detected in the Well #1 water are likely to be naturally occurring in the formations in which the well was developed.

A Sanitary Survey conducted in 2000 recommended tightening the bolts on the well casing and the installing a new mesh screen in order to prevent potential contamination at the wellhead. The Sanitary Survey also recommended that Amalgamated Sugar prepare a Cross-connection and Wellhead Protection Program. In terms of total susceptibility, Well #1 rated moderate for susceptibility to IOC, VOC, SOC and microbial contamination. The moderate rating is mainly due to the aquifer properties, high countywide farm chemical use, and the presence of nitrate and organics (SOC) priority areas within the source water assessment area for Well #1.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For Amalgamated Sugar, source water protection activities should first focus on correcting, if corrections have not been completed, the deficiencies outlined in the Sanitary Survey. Any spills from the Low Line Canal or the High Line Canal should be monitored carefully. Any spills originating from Amalgamated Sugar should be characterized and cleaned up as quickly as possible to reduce potential impact to the source water. Most of the

source water protection designated area is outside the direct jurisdiction of Amalgamated Sugar. Twin Falls County has a Wellhead Protection Overlay District Ordinance that can provide additional protection for areas outside of the direct jurisdiction of Amalgamated Sugar. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR AMALGAMATED SUGAR, TWIN FALLS, TWIN FALLS COUNTY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Amalgamated Sugar well is a non-community non-transient well that serves approximately 500 people through 1 connection. The well is located southeast of Twin Falls, just to the south of Rock Creek (Figure 1). The public drinking water system for Amalgamated Sugar is currently comprised of one groundwater well, Well #1.

Arsenic and nitrates represent the main water chemistry issues recorded for the public water system. Arsenic was detected in the Well #1 water from November 1995 to August 2000 at concentrations far below the current MCL. Nitrate was detected in the Well #1 water from June 1995 to August 2000 at concentrations below 45% of the MCL. Single detections of antimony and chromium were reported for the Well #1 water at concentrations well below the respective MCLs. The IOCs, arsenic, antimony, and chromium, detected in the Well #1 water are likely to be naturally occurring in the formations in which the well was developed. No VOCs, SOCs, or microbial contaminants were recorded in the Well #1 water.

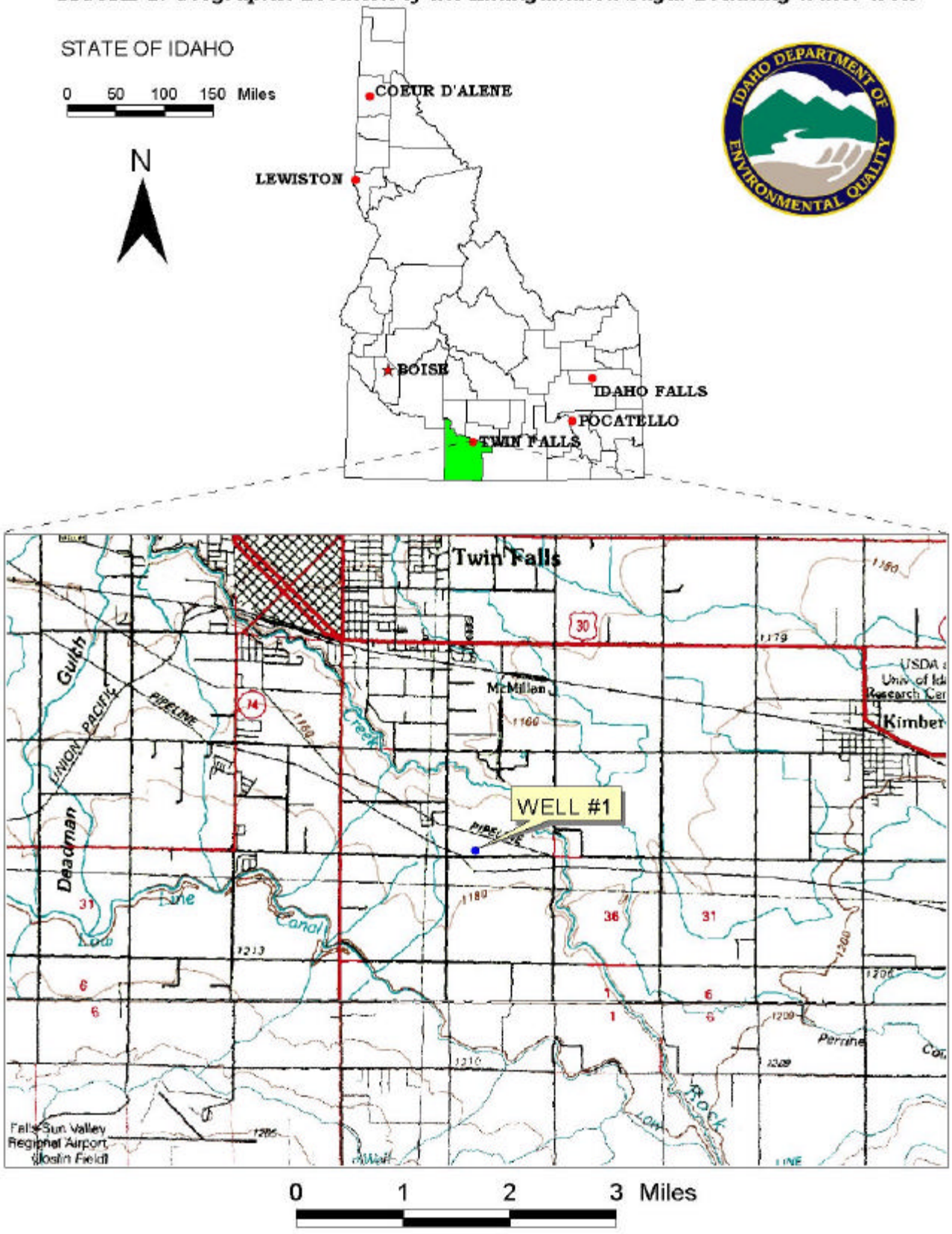
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Snake River Plain Aquifer in the vicinity of Twin Falls, Idaho. The computer model used site specific data, assimilated by DEQ from a variety of sources including the Amalgamated Sugar, Twin Falls Well #1 well log, other local area well logs, and hydrogeologic reports summarized below.

Well #1 extracts water from the Banbury Basalt which overlies the Idavada Volcanics. The Idavada Volcanics unit consists of welded ash and tuff, rhyolite, and some basalt flows. The Idavada Volcanics are up to 2,000 feet thick in the Twin Falls area and contain fractures and columnar joints, allowing some mixing of the geothermal groundwater in the Idavada Volcanics with groundwater in the Banbury Basalt (Lewis and Young, 1989). The Banbury Basalt is of variable thickness and is the primary non-geothermal aquifer in the Twin Falls area (Moffat and Jones, 1984). Basalt flows fracture at the surface as they cool. The fractures occur in the horizontal direction throughout the flow. The Banbury Basalt is fractured and contains thin sedimentary interbeds. These fractures and sedimentary interbeds comprise the water producing zones in the Banbury Basalt. (Cosgrove, et al., 1997). Regional ground water flow is to the north, but may vary with proximity to major creeks and the Snake River (Lewis and Young, 1989).

The delineated source water assessment area for the Amalgamated Sugar Well #1 can best be described as a corridor, approximately 0.4 miles wide and 4.7 miles long, extending to the southeast from Amalgamated Sugar, roughly parallel to Rock Creek (Figure 2). The actual data used by DEQ in determining the source water assessment delineation area is available upon request.

FIGURE 1. Geographic Location of the Amalgamated Sugar Drinking Water Well



Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

The dominant land use outside the Amalgamated Sugar area is irrigated agriculture. Land use within the immediate area of the wellhead consists of irrigated agriculture and a permitted Waste Water Land Application Site (WWLAP).

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination. These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A potential contaminant inventory of the study area was conducted during April 2001. This process involved identifying and documenting potential contaminant sources within Amalgamated Sugar Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ.

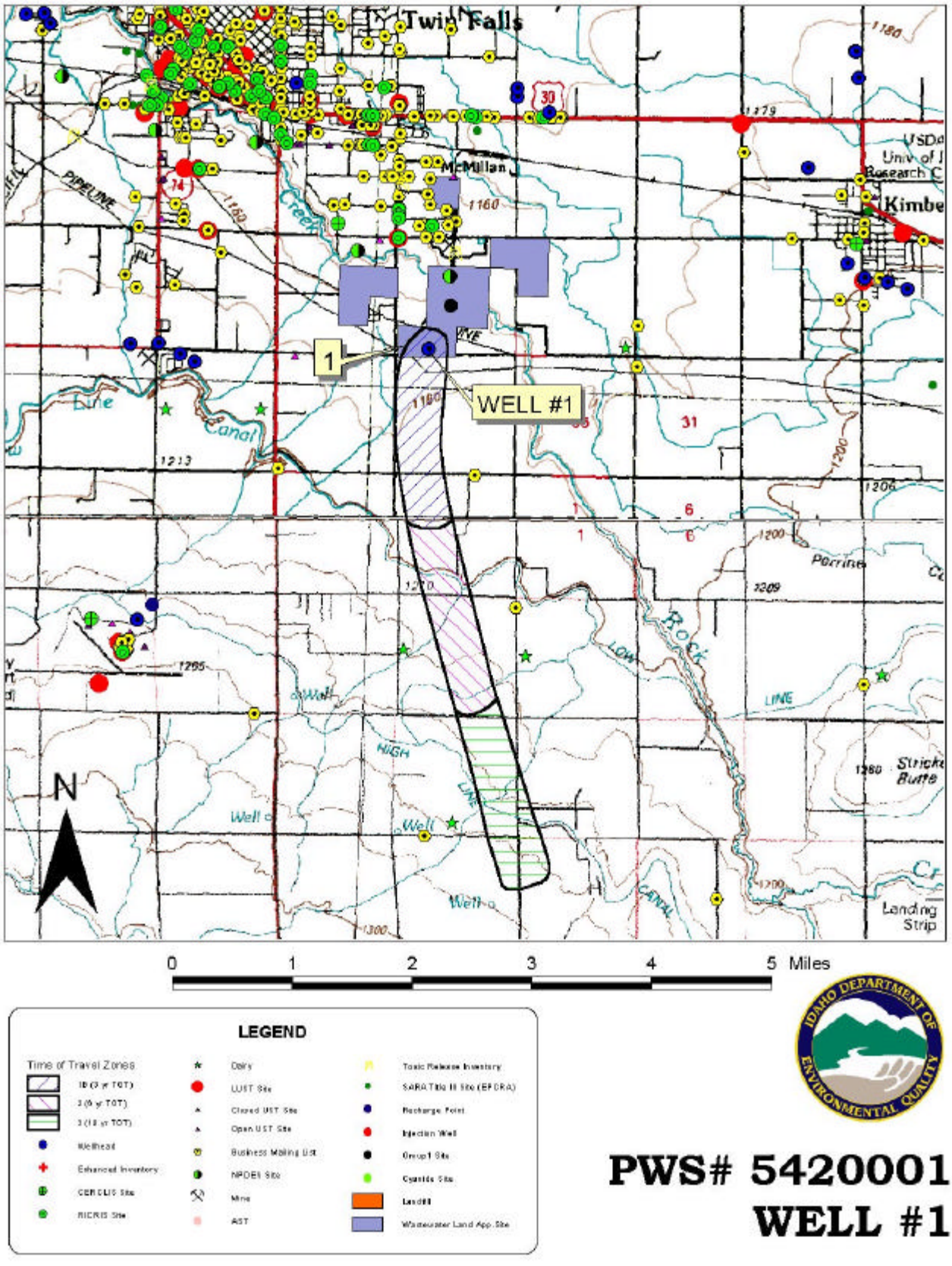
Well #1 has a delineated source water assessment area that is crossed by the Low Line Canal and the High Line Canal (Table 1). These canals are two potential sources of contamination due to the fact that they are capable of transporting and leaking contaminants into the aquifer. The only other identified potential source of contamination in the source water assessment area is a permitted WWLAP Site. Figure 2 shows the locations of these various potential contaminant sites relative to the wellhead.

Table 1. Amalgamated Sugar, Twin Falls, Well #1, Potential Contaminant Inventory

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
1	Permitted WWLAP Site	0-3	Database Search	IOC, VOC, Microbes
	Low Line Canal	3-6	GIS Map	IOC, VOC, SOC, Microbes
	High Line Canal	6-10	GIS Map	IOC,VOC, SOC, Microbes

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 2. Amalgamated Sugar Delineation Map and Potential Contaminant Source Locations



Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

Hydrologic sensitivity to potential contaminants was high for Well #1 (Table 2). This reflects the nature of the soils being in the well-drained to moderately-drained class, the vadose zone (zone from land surface to the water table) being made predominantly of fractured basalt, and the first ground water being located within 300 feet of ground surface, all of which makes Well #1 susceptible to potential contaminants. According to the well log, Well #1 does not contain at least 50 cumulative feet of low permeability units that could retard downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. The Amalgamated Sugar drinking water system consists of one well that extracts ground water for employee drinking water use as well as industrial uses. Water used for industrial purposes is supplemented with water extracted from a spring located in Rock Creek. The system construction score was moderate for Well #1. A Sanitary Survey was conducted in 2000 to determine if the well was in compliance with wellhead and surface seal standards. The Sanitary Survey noted that the well casing cover bolts needed to be tightened and that the air relief valve needed a new screen. The system corrected both of these concerns within two weeks of the survey. The well is not in the 100-year flood zone and is protected from surface flooding.

A Well log was available for Well #1 and showed that the highest water production zone for the well is at least 100 feet below static water level. The casing was extended into a low permeability unit, protecting the well from laterally migrating contaminants. The 0.25-inch casing thickness for Well #1 does not meet IDWR standards of 0.365 inches for 10-inch diameter casing as listed in the Recommended Standards for Water Works (1997).

The IDWR Well Construction Standards Rules (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the Recommended Standards for Water Works (1997) during construction. Under current standards, all PWS wells are required to have a 50-foot buffer around the wellhead. Well #1 has the requisite buffer around the wellhead. However, due to the nearby proximity of an active farming field, Amalgamated Sugar should protect against the application or storage of fertilizers, pesticides, or herbicides within 50 feet of the wellhead. Amalgamated Sugar monitors the amount of nutrients applied through process water application on the crops in the delineated source water assessment area and analyzes the amount of nutrient uptake. This Best Management Practice (BMP) is intended to protect the groundwater from potential contamination from process water application.

Potential Contaminant Sources and Land Use

The Amalgamated Sugar Well #1 rated high for susceptibility to potential contamination from IOCs (e.g., nitrates), moderate for VOCs (e.g., petroleum products) and SOCs (e.g., pesticides), and low for microbial contamination (e.g., total coliform). Agricultural land use, the presence of a nitrate priority area, the presence of

an organics priority area (pesticides), and the presence of potential contaminant sources within the delineated source water assessment area contributed to the high and moderate rankings.

Final Susceptibility Ranking

A detection above a drinking water standard MCL or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and a large percentage of agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, Well #1 rates moderate for susceptibility to IOC, VOC, SOC, and microbial contamination due to the moderate rankings for hydrologic sensitivity and system construction as well as the relatively low number of potential contaminant sources in the source water assessment area. The presence of nitrate and organics priority areas and high countywide farm chemical use also contribute to the susceptibility ranking.

Table 2. Summary of Amalgamated Sugar, Twin Falls Well #1 Susceptibility Evaluation

Well	**Susceptibility Scores[1]**									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	H	M	M	L	M	M	M	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

Arsenic and nitrates represent the main water chemistry issues recorded for the public water system. Arsenic was detected in the Well #1 water from November 1995 to August 2000 at concentrations far below the current MCL. Nitrate was detected in the Well #1 water from June 1995 to August 2000 at concentrations below 45% of the MCL. Single detections of antimony and chromium were reported for the Well #1 water at concentrations well below the respective MCLs. The IOCs, arsenic, antimony, and chromium, detected in the Well #1 water are likely to be naturally occurring in the formations in which the well was developed. No VOCs, SOCs, or microbial contaminants were recorded in the Well #1 water.

A nitrate priority area and an organics priority area (for pesticides) cross the delineated source water area of Well #1. Countywide farm chemical use is considered high in this area and the delineated source water area for the wells is surrounded by a significant amount of irrigated agricultural land. Additionally, potential sources of contamination exist in the delineated source water area for Well #1.

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For Amalgamated Sugar, source water protection activities should focus on implementation of practices aimed at protecting the area nearest the well and addressing any deficiencies listed in the 2000 Sanitary Survey. Amalgamated Sugar should also be diligent about monitoring spills from businesses with potential IOC, VOC, SOC, or microbial contaminants. If concentrations of arsenic, antimony, chromium, or nitrate in Well #1 increase, Amalgamated Sugar should investigate various systems like ion exchange, reverse osmosis, or activated alumina that could be used to treat these IOCs.

Though water quality is generally good for Amalgamated Sugar, the highly fractured nature of the basalt aquifer could lead to cross-contamination from shallower fractures to deeper fractures depending on well construction. Any spills from the Low Line Canal, the High Line Canal, Amalgamated Sugar, or the agricultural property in the delineated source water assessment area should be monitored carefully. Any surface releases should be monitored to prevent contaminants from infiltrating to the ground water producing zones. Amalgamated Sugar should continue to follow the management practices contained in the Site Performance Summary of the Annual Waste Water Report with regard to land application of process water within the delineated source water assessment area. Amalgamated Sugar monitors the amount of nutrients applied through process water application on the crops in the delineated source water assessment area and analyzes the amount of nutrient uptake. This Best Management Practice (BMP) is intended to protect the groundwater from potential contamination from process water application.

Most of the designated source water protection areas are outside the direct jurisdiction of Amalgamated Sugar. Twin Falls County has a Wellhead Protection Overlay District Ordinance that can provide additional protection for areas outside of the direct jurisdiction of the City of Twin Falls. Partnerships with state and local agencies and industry groups should be established and are critical to success. Continued vigilance in keeping the well protected from surface flooding can also keep the potential for contamination reduced. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office (208) 736-2190

State DEQ Office (208) 373-0502

Website: http://www2.state.id.us/deq

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with wellhead protection strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as "Superfund" is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

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Attachment A

Amalgamated Sugar Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : AMALGAMATED SUGAR TWIN FALLS Well# : WELL
Public Water System Number 5420001 5/8/01 2:14:28 PM

1. System Construction		SCORE				
Drill Date	12/1/89					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	2000				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	NO	1				
Casing and annular seal extend to low permeability unit	YES	0				
Highest production 100 feet below static water level	YES	0				
Well located outside the 100 year flood plain	YES	0				
Total System Construction Score		2				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO	2				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
Total Hydrologic Score		6				
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2	
Farm chemical use high	YES	2	0	2		
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO	
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	1	1	0	1	
(Score = # Sources X 2) 8 Points Maximum		2	2	0	2	
Sources of Class II or III leacheable contaminants or	YES	3	0	1		
4 Points Maximum		4	0	1		
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	2	0	
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4	
Total Potential Contaminant Source / Land Use Score - Zone 1B		10	6	7	6	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	YES	2	2	2		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2		
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	1		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1		
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0	
Cumulative Potential Contaminant / Land Use Score		20	16	19	8	
4. Final Susceptibility Source Score		12	11	12	11	
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate	